



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 09/931,179 | 08/17/2001 | Leonard Metcalfe | P06862US01/DEJ | 1424 |
| 24320 | 7590 | 08/20/2004 | EXAMINER | |
| Paul Smith Intellectual Property Law 330-1508 West Broadway Vancouver, BC V6J1W8 CANADA | | | JOHNS, ANDREW W | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2621 | 9 |
| DATE MAILED: 08/20/2004 | | | | |

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/931,179

Applicant(s)

METCALFE ET AL.

Examiner

Andrew W. Johns

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>4</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Drawings

1. The drawings filed on 17 August 2001 are acceptable subject to correction of the informalities indicated on the attached "Notice of Draftsperson's Patent Drawing Review," PTO-
5 948. In order to avoid abandonment of this application, correction is required in reply to the Office action. The correction will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: Applicant should update paragraphs [0002] and [0003] to include the Application Serial Numbers of the co-
10 pending, related applications and their current pendency status.

Appropriate correction is required.

Claim Rejections - 35 U.S.C. § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. § 112:

15 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 3-4 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

20 The recitation of "said axis data" at line 2 of claim 3 is indefinite as there is no prior recitation of any "axis data" in the preceding claim language, so that it is unclear what data is referred to by this recitation and how it relates to the rest of the claim language. The recitation of "said lumber" at line 2 of claim 4 is similarly indefinite, as there is no recitation of any lumber in the language from which claim 4 is dependent. While claim 2 does recite that the object is

lumber, claim 4 does not depend from claim 2, and cannot rely upon the recitation therein for support. Therefore, claims 3 and 4 each fails to clearly point out and distinctly claim applicant's invention.

Claim Rejections - 35 U.S.C. § 102

5 5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

10 (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15 6. Claims 1-17 and 19-23 are rejected under 35 U.S.C. § 102(e) as being anticipated by Zhou et al. (US 6,624,883 B1).

20 Zhou et al. teaches a method for determining characteristics of an object having a grained surface (determines wood grain orientation; see the first sentence of the abstract), including providing a light source (21 in Figure 1; column 4, lines 55-58); providing a TV camera (i.e., CCD camera 28 in Figure 1; column 4, lines 60-61); with said light source, projecting a zone of light on said object (column 4, lines 57-58; beam of laser light is projected on to surface of wood panel to form a light spot or spot-matrix); imaging said zone of light on said object with said TV camera (column 4, lines 60-62; the camera captures an image of the light spot or spot-matrix) to
25 provide zone image data which is dependent on the grain of said object (column 5, lines 12-18); and analyzing said zone image data to determine at least one characteristic of said object (processing steps described in detail at column 5, line 48 through column 7, line 7; and provides an indication of grain orientation; column 7, lines 6-7), as stipulated by claim 1.

In addition, Zhou et al. also teaches that the object is lumber (i.e., a wood panel; column 4, line 58), as further defined in claim 2; a further step of determining the quality and grade of the object using the data (column 1, lines 9-11), as variously set forth in claims 3 and 4; that a plurality of zones be projected at a plurality of spaced positions on the object (i.e., the spaced-apart spots that make up the spot-matrix 74 in Figures 1 and 5(c)), as required by claim 5; that the projected zone is a spot (i.e., spot 72 in Figure 1), as stipulated by claim 6; and that only a fraction of the object is illuminated (as shown in Figure 1; only a small portion 75 of the object 70 is illuminated) as set forth by claim 19. With respect to claims 7 and 8, Zhou et al. additionally teaches that the TV camera employs a photo-detector array (i.e., a CCD array; column 5, line 30) that is pixel addressable (column 5, lines 33-45). Furthermore, Zhou et al. additionally teaches determining, from the zone image data, at least one axis of the zone image indicative of the grain (column 7, lines 24-25; elongate shapes indicate grain orientation), as required by claim 9; determining the angle of the zone image axis (i.e., θ in the equation at column 7, line 3) and the change from a norm parallel to the axis of the object (as shown in the equations in column 6), as variously required by claims 10-13). Finally, Zhou et al. teaches that the light source is a laser (column 4, lines 55-56), as further required by claim 14; wherein the light source and/or the camera are controlled to allow operation over wide range of object reflectivity conditions (column 7, lines 35-48), as variously stipulated by claims 15-17; that more than one camera (Figure 5(b) shows plural cameras 53 on each side of the light source) or light source (52-1 and 52-2 in Figure 5(a)) can be employed, as variously required by claims 20 and 21; that the projected zone is of arbitrary shape (column 7, lines 25-26; the shape can depend on the surface conditions), as required by claim 22; and determining the grayscale intensity value of

points within the zone (column 5, lines 44-45), as defined by claim 23. Therefore, Zhou et al. meets each of the limitations of these claims and anticipates the claimed invention.

Claim Rejections - 35 U.S.C. § 103

7. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 18 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Zhou et al. as applied to claims 1-17 and 19-23 above, and further in view of Pryor '617 (US 2002/0036617 A1).

While Zhou et al. meets a number of the limitations of the claimed invention, as pointed out more fully above, Zhou et al. fails to specifically teach that the TV camera employ at least one PSD detector, as further required by claim 18.

Pryor '617 teaches the use of PSD detector in conjunction with a TV camera (page 34, paragraphs [0649] through [0658]) to detect light spots (paragraph [0649], lines 4-8), and further suggests that the use of such a PSD improves the performance of the TV camera (i.e., the PSD finds a first target allowing easier detection of additional targets with the TV camera using a priori information; paragraph [0655]) so that it would have been obvious to one of ordinary skill to use such a PSD detector with the TV camera of Zhou et al. in order to more rapidly and reliably detect the spot in the spot-matrix. Therefore, the claimed invention would have been obvious to one of ordinary skill in the art at the time of the invention by applicant.

Conclusion

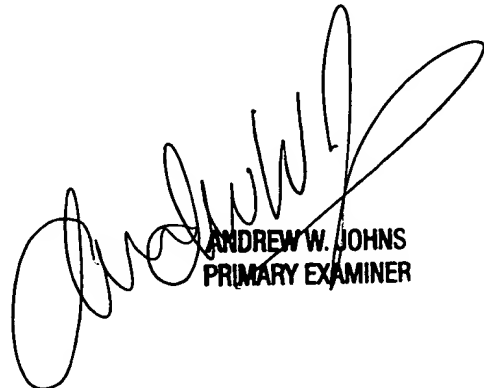
9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Aune et al. determines the grade of lumber using electromagnetic radiation detectors. Barnes et al. determines the orientation of particles in a strand board. Conners et al. uses images
5 to detect lumber defects.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Johns whose telephone number is (703) 305-4788. The examiner is normally available Monday through Friday, at least during the hours of 9:00 am to 3:00 pm Eastern Time. The examiner may also be contacted by e-mail using the address:
10 andrew.johns@uspto.gov. (Applicant is reminded of the Office policy regarding e-mail communications. See M.P.E.P. § 502.03)

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Leo Boudreau, can be reached on (703) 305-4706. The fax phone number for this art unit is (703) 872-9306. In order to ensure prompt delivery to the examiner, all unofficial communications
15 should be clearly labeled as "Draft" or "Unofficial."

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center Receptionist whose telephone number is (703) 305-4700.
20

25 A. Johns
14 August 2004



ANDREW W. JOHNS
PRIMARY EXAMINER